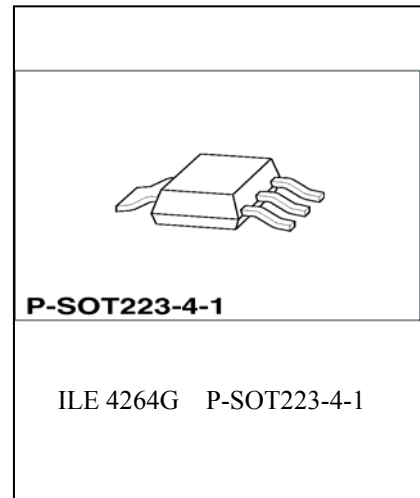


## 5-V Low-Drop Fixed-Voltage Regulator

**ILE4264G**

ILE 4264 G is a 5-V low-drop fixed-voltage regulator in an SOT-223 package. The IC regulates an input voltage  $V_i$  in the range  $5.5\text{ V} < V_i < 45\text{ V}$  to  $V_{Qrated} = 5.0\text{ V}$ . The maximum output current is more than 120 mA. This IC is shortcircuit-proof and features temperature protection that disables the circuit at overtemperature.



### Features:

- Output voltage tolerance  $\leq \pm 2\%$
- Low-drop voltage
- Very low current consumption
- Overtemperature protection
- Short-circuit proof
- Suitable for use in automotive electronics
- Reverse polarity.

### Dimensioning Information on External Components

The input capacitor  $C_i$  is necessary for compensating line influences. Using a resistor of approx.  $1\ \Omega$  in series with  $C_i$ , the oscillating of input inductivity and input capacitance can be clamped. The output capacitor  $C_o$  is necessary for the stability of the regulating circuit. Stability is guaranteed at values  $C_o \geq 10\ \mu\text{F}$  and an  $\text{ESR} \leq 10\ \Omega$  within the operating temperature range.

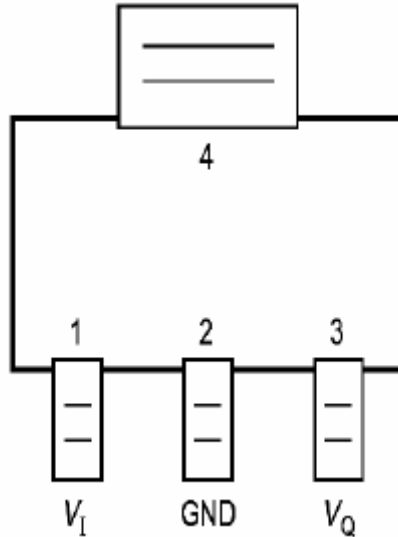
### Pin Definitions and Functions

Pin	Symbol	Function
1	$V_i$	<b>Input voltage;</b> block to ground directly on IC with ceramic capacitor
2, 4	GND	<b>Ground</b>
3	$V_o$	<b>5-V output voltage;</b> block to ground with $\geq 10\text{-}\mu\text{F}$ $\Omega$ capacitor, $\text{ESR} < 10\ \Omega$

### Circuit Description

The control amplifier compares a reference voltage, which is kept highly precise by resistance adjustment, to a voltage that is proportional to the output voltage and drives the base of the series transistor via a buffer. Saturation control, working as a function of load current, prevents any over-saturation of the power element. The IC is additionally protected against overload, overtemperature and reverse polarity.

**Pin Configuration**  
(top view)

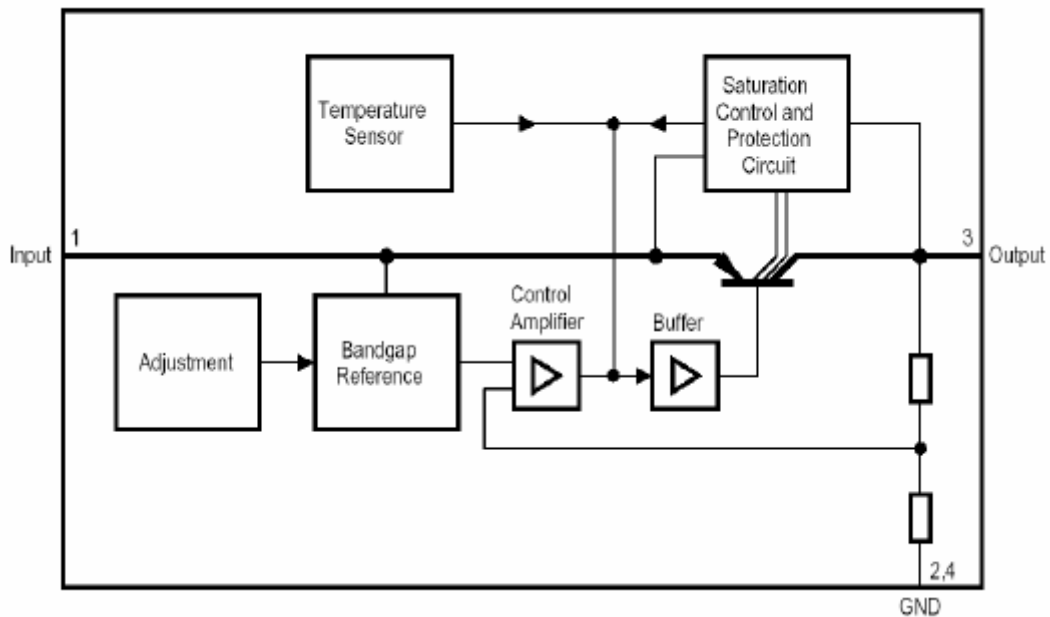


**Absolute Maximum Ratings**

$T_j = -40$  to  $150$  °C

Parameter	Symbol	Limit Values		Unit	Notes
		min.	max		
<b>Input</b>					
Input voltage	$V_I$	-42	45	V	-
Input current	$I_I$	-	-	-	limited internally
<b>Output</b>					
Output voltage	$V_Q$	-1	16	V	-
Output current	$I_Q$	-	-	-	limited internally
<b>Ground</b>					
Current	$I_{GND}$	50	-	mA	-
<b>Temperatures</b>					
Junction temperature	$T_j$	-	150	°C	-
Storage temperature	$T_{stg}$	-50	150	°C	-
<b>Operating Range</b>					
Input voltage	$V_I$	5.5	45	V	-
Junction temperature	$T_j$	-40	150	°C	-
<b>Thermal Resistances</b>					
System-air	$R_{th SA}$	-	100	K/W	soldered in
System-case	$R_{th SC}$	-	25	K/W	-

**Block Diagram**

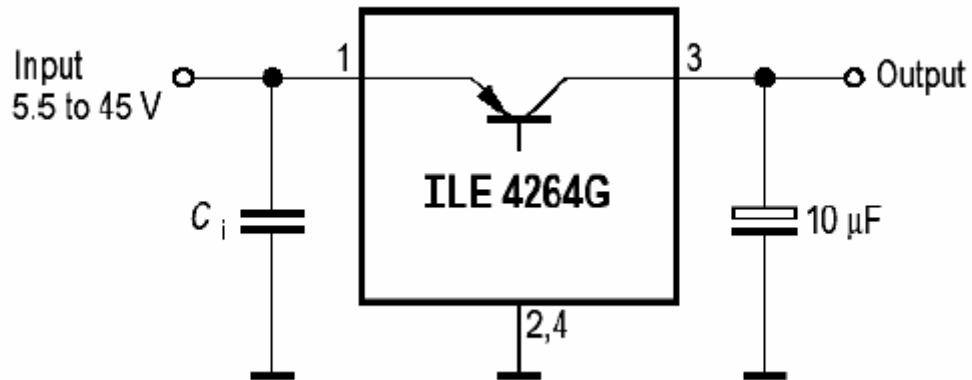


**Characteristics**

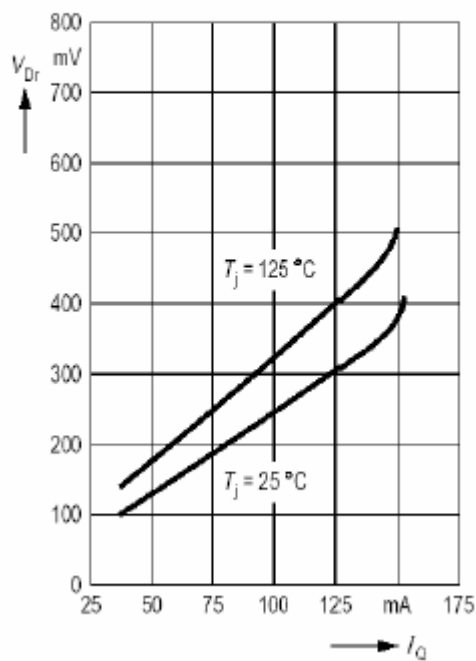
$V_I = 13.5\text{ V}; -40\text{ }^\circ\text{C} \leq T_j \leq 125\text{ }^\circ\text{C}$ , unless specified otherwise

Parameter	Symbol	Limit Values			Unit	Test Condition
		min	Typ	Max		
Output voltage	$V_Q$	4.9	5.0	5.1	V	$5\text{ mA} \leq I_Q \leq 100\text{ mA}$ $6\text{ V} \leq V_I \leq 28\text{ V}$
Output-current limiting	$I_Q$	120	150	–	mA	–
Current consumption $I_q = I_I - I_Q$	$I_q$	–	–	400	$\mu\text{A}$	$I_Q = 1\text{ mA}$
Current consumption $I_q = I_I - I_Q$	$I_q$	–	10	15	mA	$I_Q = 100\text{ mA}$
Drop voltage	$V_{dr}$	–	0.25	0.5	V	$I_Q = 100\text{ mA}_{(1)}$
Load regulation	$\Delta V_Q$	–	–	40	mV	$I_Q = 5\text{ to }100\text{ mA}$ $V_I = 6\text{ V}$
Supply-voltage regulation	$\Delta V_Q$	–	15	30	mV	$V_I = 6\text{ to }28\text{ V}$ $I_Q = 5\text{ mA}$
Supply voltage suppression	SVR	–	54	–	dB	$f_r = 100\text{ Hz}$ $V_r = 0.5\text{ Vpp}$

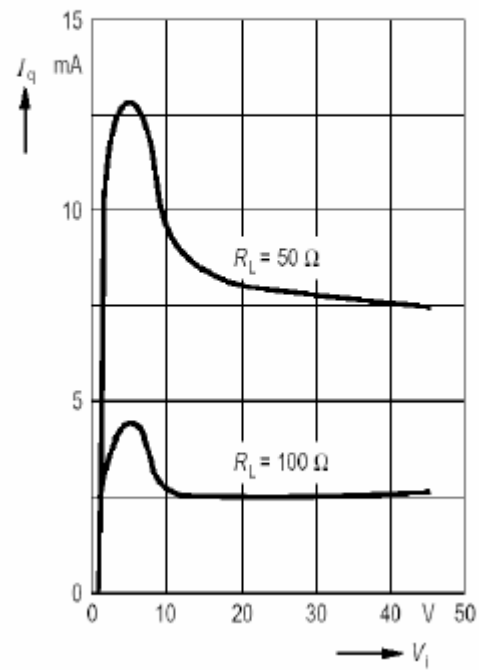
Application Circuit



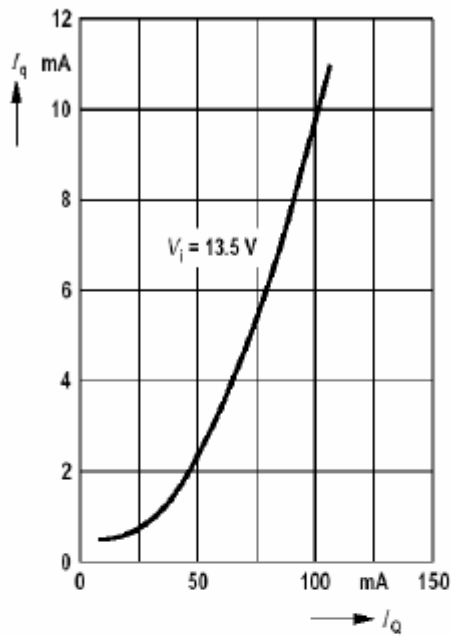
Drop Voltage  $V_{Dr}$  versus Output Current  $I_O$



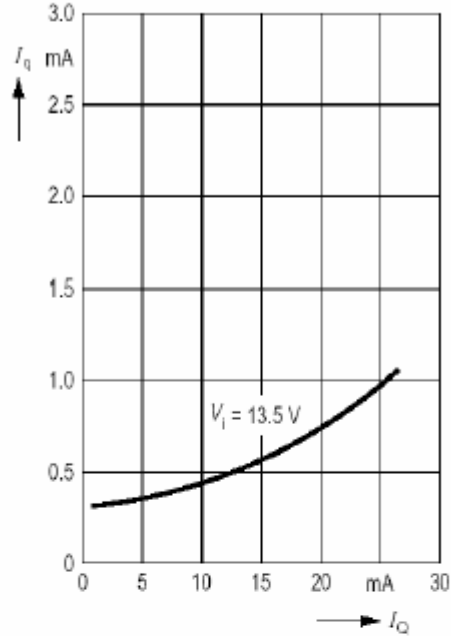
Current Consumption  $I_q$  versus Input Voltage  $V_i$



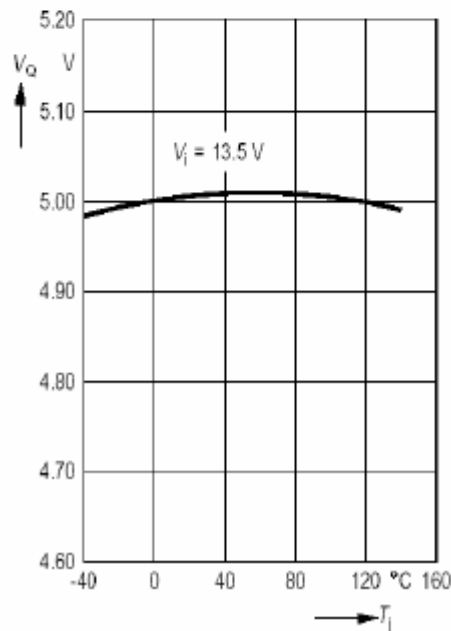
Current Consumption  $I_q$  versus Output Current  $I_Q$



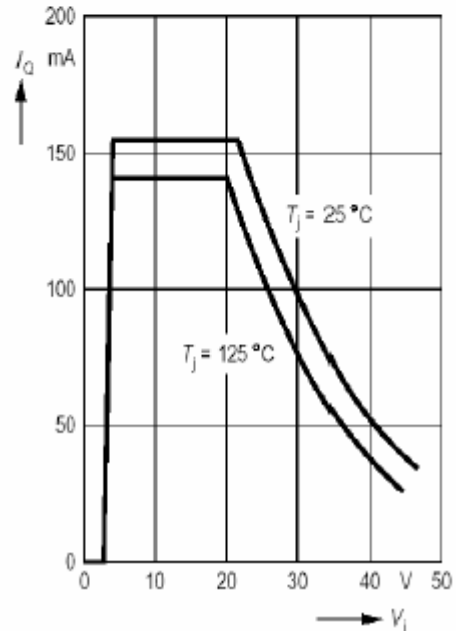
Current Consumption  $I_q$  versus Output Current  $I_Q$



Output Voltage  $V_Q$  versus Temperature  $T_j$



Output Current  $I_Q$  versus Input Voltage  $V_i$



Package Dimensions

P-SOT 223-4-1

